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NOTICE OF ALLOWANCE AND FEE(S) DUE

23486 7590 03/09/2010

SHUTTLEWORTH & INGERSOLL, P.L.C.
115 3RD STREET SE, SUITE 500
P.O. BOX 2107
CEDAR RAPIDS, IA 52406

EXAMINER

OLSON, LARS A

ART UNIT

PAPER NUMBER

3617

DATE MAILED: 03/09/2010

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/581,123 | 06/13/2007 | Andrew F. Barrett | 20559-0433 | 1759 |

TITLE OF INVENTION: CONTROL OF A WATERJET PROPELLED VESSEL

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1510 | \$300 | \$0 | \$1810 | 06/09/2010 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax **(571) 273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23486 7590 03/09/2010
SHUTTLEWORTH & INGERSOLL, P.L.C.
115 3RD STREET SE, SUITE 500
P.O. BOX 2107
CEDAR RAPIDS, IA 52406

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

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| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---------------|----------|----------------|
| OLSON, LARS A | 3617 | 440-001000 |

| | |
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| 1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). | 2. For printing on the patent front page, list |
| <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. | (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, |
| <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required. | (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. |

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____

(B) RESIDENCE: (CITY AND STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

| | |
|---|--|
| 4a. The following fee(s) are submitted: | 4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) |
| <input type="checkbox"/> Issue Fee | <input type="checkbox"/> A check is enclosed. |
| <input type="checkbox"/> Publication Fee (No small entity discount permitted) | <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. |
| <input type="checkbox"/> Advance Order - # of Copies _____ | <input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form). |

| | | |
|--|--|---|
| 5. Change in Entity Status (from status indicated above) | <input type="checkbox"/> a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. | <input type="checkbox"/> b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2). |
|--|--|---|

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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| 23486 | 7590 | 03/09/2010 | EXAMINER | |
| SHUTTLEWORTH & INGERSOLL, P.L.C. | | | | OLSON, LARS A |
| 115 3RD STREET SE, SUITE 500 | | | | ART UNIT |
| P.O. BOX 2107 | | | | 3617 |
| CEDAR RAPIDS, IA 52406 | | | | PAPER NUMBER |
| DATE MAILED: 03/09/2010 | | | | |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 139 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 139 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| | | |
|-------------------------------|--------------------------------------|---------------------------------------|
| Notice of Allowability | Application No. 10/581,123 | Applicant(s) BARRETT ET AL. |
| | Examiner Lars A. Olson | Art Unit 3617 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to the after-final amendment received from the applicant on February 17, 2010.
 2. The allowed claim(s) is/are 1-59.
 3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.
- Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.
4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
 6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

Reasons for Allowance

1. An after-final amendment was received from the applicant on February 17, 2010.
2. Claims 1-59 are allowed.
3. The following is an examiner's statement of reasons for allowance. The method for controlling a watercraft as claimed is not shown or suggested in the prior art because of the use of a method that includes the step of prepositioning an angle of a rear propulsion device of a watercraft in order to provide a sideways force so as to minimize yaw prior to the occurrence of a heading error, where said angle is based on operating characteristics of said watercraft. The prior art also does not show or suggest the use of said method including the step of determining a plurality of algorithm gains based on a heading error and a heading error rate in order to control an amount or rate of deflection of a nozzle of a watercraft, or the steps of acquiring a heading turn rate from an angular rate of turn sensor and calculating a heading of a watercraft based on the heading turn rate and an original heading, or the steps of measuring an amount of error induced by the effect of magnetic, electrical or vibration disturbance on heading data from a heading sensor and correcting said heading data by adding a correction value to said heading to offset a measured amount of error induced by said disturbance, or the steps of determining if a steering apparatus is off-center for altering a position of a nozzle of a watercraft and, if said steering apparatus is in a center position, setting a nozzle position command to oppose a turn of said watercraft, or the step of engaging a thruster after a predetermined time delay to provide sideways movement after a stern of

a watercraft has gained sideways momentum from a rear propulsion device, or the step of reducing an effect of electromagnetic field interference on the accuracy of a heading signal from a magnetic heading sensor by either compensating for said field interference or acquiring a heading signal only when electromagnetic interference is low enough to prevent inaccuracy of heading data.

4. The prior art as disclosed by Braddon (US 3,715,571) shows the use of a method for calculating a heading of a watercraft, said method including the steps of acquiring a heading of a watercraft from a heading sensor, acquiring a heading turn rate from a yaw rate transmitter, determining if said acquired heading is accurate using a heading integrator, calculating a heading based on said heading turn rate and said acquired heading, and outputting said calculated heading for control of said watercraft. Wesner (US 3,604,907) discloses a method for correcting a heading of a watercraft, said method including the steps of measuring an amount of error induced by a disturbance on data from a heading sensor, acquiring heading data from said heading sensor, determining if a disturbance is occurring, correcting said heading data with a filtering function, and outputting corrected heading data for control of said watercraft. McKenney et al. (US 6,230,642) discloses a method for controlling a watercraft, said method including the steps of prepositioning an angle of a rear propulsion device of said watercraft after engagement of a thruster to provide sideways force that minimizes yaw prior to the occurrence of a heading error. Ford et al. (US 5,509,369) discloses a method for controlling a heading of a watercraft, said method including the steps of acquiring a desired heading using an automatic steering system, acquiring an actual

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heading using a flux gate compass, calculating a heading error by comparing said desired heading with said actual heading, determining a rate of change of said heading error using a heading gain multiplier, determining algorithm gains used to control a rate of deflection of a steering actuator, determining an amount of deflection for said steering actuator, deflecting said steering actuator based on said determined amount of deflection, and repeating said steps until said actual heading equals said desired heading.

Conclusion

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
6. Any inquiry concerning this communication from the examiner should be directed to Exr. Lars Olson whose telephone number is (571) 272-6685.

lo

February 24, 2010

/Lars A. Olson/

Primary Examiner, Art Unit 3617